Suggest that we keep a lookout for signs of Contarinia this summer and collect as encountered. RLF

DIVISION OF ENTOMOLOGY

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DEPARTMENT OF AGRICULTURE

Forest Biology Laboratory,
Research Branch,
Box 1030, Vernon, B. C.
July 22, 1960.

Mr. R. L. Furniss,
Chief, Division of Forest Insect Research
U.S. Department of Agriculture,
809 N.E. Sixth, P.O. Box 4059
Portland 8, Oregon, U. S. A.

Dear Mr. Furniss:

Three new Species in the genus Contarinia Rond. (Diptera: Cecidomyiidae) have just been described: Contarinia pseudotsugae, C. constricta and C. cuniculator. Their larvae live inside the needles of Douglas fir, Pseudotsuga menziesii (Mirb.) Franco, and cause heavy loss of needles in some areas.

Little is known of the geographic distribution of these species through their host range south of British Columbia. Any collections of Douglas-fir foliage containing needles damaged by these gall midges would be gratefully received from your State. Any samples sent before September 15 (infested needles may be found from June on) should be especially appreciated, as the records shall be published in an article on the species' bionomics after that time.

Enclosed are photographs of the damage and their descriptions for each species of Contarinia to aid in collecting them. Contarinia constricta and C. cuniculator are of particular interest as they are less common of the three species. Douglas fir twigs ship best in plastic bags.

Thank you very much for your cooperation.

Reprints of publications shall be sent, upon request, when they are issued.

Yours truly,

S. F. Condrashoff

S. F. Condrashoff,
Research Officer.

Quarantine problems?

FKH
RLF

Bob -
We've collected these, but all we've reared is parasites. Dissections of needles showed a small percent with Cecidomyiid larvae but none emerged.
SFC/nm
Encl.
Val

Characteristics of Contarinia spp. Galls on Douglas-Fir Needles

External characteristics of the galls:- The galls of these midges are degenerate and are hardly more than a slight abnormality in growth due to destruction and disturbance of needle tissue. Nevertheless each type of gall is distinct and characteristic for each of the three species of Contarinia that inhabit Douglas-fir needles. The galls appear several weeks after the needles are attacked. Only current year's needles are infested.

Contarinia pseudotsugae larvae cause the infested portion of the needle to become swollen on the lower surface and to be colored on both surfaces with yellow, pink, or purple (Figs. 16a, b). The lower surface of the gall contains the larval entrance hole (Fig. 16c), which is represented by a small orange blotch in the epidermis, usually on the medio-lateral part of the needle; up to 40 entrance holes have been counted in heavily attacked needles. The gall first appears about 3 weeks after the needle is attacked, and is soft, pliable and light in color; throughout the summer it becomes drier and harder, and darker in color; by the end of the summer the gall is brittle, and in late autumn it turns brown.

C. constricta galls first appear as a dark purplish spot 0.5 mm. in diameter on a patch of light yellow discoloration visible on either surface of the needle. The larva is always found directly beneath the dark spot, which marks the position of the larval chamber. Within 4-6 weeks later the galled portion of the needle becomes dilated and flattened and the dark spot measures about 1 mm. in diameter (Figs. 17a, b); a tiny orange patch on the lower surface of the needle (Fig. 17c) marks the point of larval entrance, which is usually found on the medio-lateral part of the needle about 1-2 mm. from the dark spot. As the season progresses the gall becomes brittle and dark.

C. cuniculator galls involve primarily the upper surface of the needle, and are in the form of a median longitudinal spindle-shaped swelling, which serves as a canop for the larval mine; the upper surface is dirty yellow with a glossy, waxy appearance (Fig. 18a), while the lower surface appears normal (Fig. 18b), becoming discolored with brown only in late autumn or winter when the entire gall darkens. Frequently the needle is be at the gall, a condition that probably results from a disturbance of tissue grow on the side of the needle where the larval enters; the larval entrance hole (Fig. 18c) is on the upper edge of the needle on the inside curvature of the bend.

Other agents may cause damage to Douglas-fir needles that might resemble the midge galls, but they can be distinguished by a few fundamental characters. Douglas fir needle-cast, Rhabdocline pseudotsugae Syd. causes

patches of yellow discoloration on the needle in early winter, which in turn reddish the following spring. This disease condition may be separated from Contarinia galls on the following characteristics: (1) absence of any swelling (2) absence of larval entrance holes (3) discoloration of needle is mottled in appearance. Adelges damage may be distinguished from Contarinia galls on the following characteristics: (1) discolored patch is largely on the upper surface of the needle and is faint white instead of yellow (Fig. 19a); (2) no swelling on lower surface of needle (Fig. 19b); (3) prominent indentation near lateral border on lower surface of needle (Fig. 19c) often with pitch exudation and remnant of the adelgid's proboscis. Figures 5a and 5b illustrate the appearance of a normal, healthy Douglas-fir needle.

S. F. Condrashoff,
Research Officer
Vernon, B. C.

/nm